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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/668,297 09/25/00 MASHITANI

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EXAMINER

MM91/1024

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1050 CONNECTICUT AVENUE NW
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CHANG, A

ART UNIT

PAPER NUMBER

2872

DATE MAILED:

10/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/668,297

Applicant(s)

MASHITANI ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification fails to teach adequately as how does the “area shifting and division control means for **dividing** the shading means into areas in a horizontal direction” be obtained when the shading means is defined as “for shifting a position of a shading part”, as recited in claim 1. Namely the shading means is defined to be a movable mechanism for “shifting” or moving the shading parts it is not clear how could it be “**divided**” into areas.

The specification also fails to teach adequately as how could the shading means “comprises a continuous shading part and a liquid crystal shutter part for turning on and off the shading part provided on **both sides** of the continuous shading part” as recited in claim 7. It is understood that the turning on or off of the liquid crystal shutter **will not** change the shading state of the “continuous shading part” which means the image displayed on the display means will be **shaded** by the continuous shading part whether the shutter is on or off. The specification therefore fails to teach how do the shutter part and the continuous shading part cooperate together to provide the parallax barrier function for the shading means and in particular the function of shifting the position of the shading part.

The specification also fails to teach adequately as how to have a liquid crystal shutter being provided on **both sides** of the continuous shading part as recited in claim 9.

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Clarifications are required. Claims 2-13 inherit the rejection.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted **structural cooperative** relationships are: among the “image display means”, the “shading means”, the “shading part”, “the sensor” and the “control means”. The claims as stand now fail to define an operable device and fail to define a definite scope of the claims sought for patent.

The phrase “controlling shifting a shading part” recited in claim 1 appears to be vague and indefinite since it is not clear if the shading part is the same or not as the shading part recited in the earlier part of the claim. Claim 1 recites that both the “shading means” and the “area shifting means and division control means” are provided to shift the shading part. It is not clear the shading part is shifted by which means.

The phrase “without glasses” recited in claim 1 appears to be vague and indefinite since it is not clear what does this glasses has anything to do with the display device. If applicant intends to claim a stereoscopic image display without using aided glasses by the observer then such display is known in the art as “autostereoscopic display device”.

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Claims 7-9 appears to be vague and indefinite since it is not clear what are the scopes for each of the claims. It is not clear how does the shading means defined in claim 7 works to provide stereoscopic image. It is not clear what exactly is an "aperture ratio equivalent to a boundary part of the dividing areas" as recited in claim 8. **The language recited in claim 9 simply is confusing and indefinite it is not clear what features are sought for patent here.**

The phrase "to supply an image for a dominant eye to the dominant eye of the viewer" recited in claim 12 appears to be vague and indefinite since it is not clear what does this phrase mean.

Claims 2-13 inherit the rejections from their respective based claim.

Clarifications are required. The claims as stand now contain numerous errors, confusions and indefiniteness. The examiner can only point out a few. It is the applicant's responsibility to clear out ALL of the discrepancies of the claims to make them in comply with the requirements of 35 USC 112.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. **Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by the patent issued to Hamagishi (PN. 6,049,424).**

Hamagishi teaches a three dimensional display device of autostereoscopic type that is comprised of:

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(1) a *liquid crystal display panel* (20) serves as the image display means for displaying alternatively arranged left eye image strips and right eye image strips, (please see Figure 1),

(2) a *shading barrier* (10) having barrier (12) serves as the shading part wherein a shading movement means is provided to shift the positions of the barrier (12),

(3) a *position sensing control means*, serves as the sensor for detecting a head position of a viewer, and

(4) a *shading movement means* in response to the detected movement of the head that controls the shifting of the barrier (12) in the shading barrier (10) and divides and determines the areas of the barrier (12), (please see Figure 5).

Hamagishi teaches that the barrier movement means moves the barrier of the shading barrier by a quarter of the pitch of the barrier, (please see column 23, lines 25-27).

It is implicitly true that the liquid crystal display means is controlled to have the left eye image and right eye image displayed areas in accordance with the barrier arrangement and movement of the shading barrier in order to provide stereoscopic image display.

With regard to claim 4, Hamagishi teaches that the shading barrier is placed between the light source (30) and the LCD panel, (please see Figure 1). With regard to claim 5, Hamagishi also teaches that the shading barrier may be placed at the light emission side of the LCD panel, (please see Figure 10).

With regard to claim 6, Hamagishi teaches that the shading barrier may comprise a liquid crystal panel, (please see Figure 10, column 11). With regard to claims 7-9, Hamagishi teaches that the shading barrier (10) may comprise a shading barrier (12) and a pair of liquid crystal switches (31 and 32) that may be tuned on or off in response to the detected the movement of the head of the observer, (please see Figure 10 and column 11). The division into areas is uniform.

With regard to claim 13, Hamagishi teaches that the shading barrier is composed of LCD panel such that the barrier may be switched between on and off states and the liquid crystal display means may

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be switched between the states of displaying 3D images and 2D images, (please see column 3, lines 30-35).

This reference has therefore anticipated the claims.

7. Claims 1, 3, 5, 6, and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Isono et al (PN. 5,315,377).

Isono et al teaches a three dimensional image display of the autostereoscopic type, wherein the display comprises:

(1) a *liquid crystal panel* (46), serves as the *image display means*, for displaying alternative image strips of left eye image and right eye image, (please see Figure 2),

(2) a *parallax barrier panel* (28), serves as the *shading means*, for displaying and shifting the positions of stripe barrier that is displayed on the panel,

(3) a *head position detecting unit* (8), serves as the *sensor for detecting a head position* of a viewer, and

(4) a *computer* (20) and a *controller* (22), serve as the *area shifting and division control means* for dividing the parallax barrier panel into areas of the stripe barrier and shifting them to appropriate places for providing stereoscopic image display, (please see Figures 1-2, columns 4-7).

With regard to claim 3, it is implicitly true that the liquid crystal panel for displaying the strip images is divided into strip areas that are in accordance to the positions of the stripe barrier on the parallax barrier panel in order to produce stereoscopic display of the images.

With regard to claim 5, Isono et al teaches that the parallax barrier panel (28) is placed at the light emission side of the liquid crystal image display panel (46), (please see Figure 1).

With regard to claim 6, Isono et al teaches that the parallax barrier panel is a liquid crystal panel, (please see column 4).

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With regard to claim 11, Isono et al teaches the barrier panel is divided into uniform areas.

With regard to claim 13, Isono et al teaches that parallax barrier panel may be controlled so that the image display apparatus may be used to display two-dimensional image.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 2, 4, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Isono et al in view of the patent issued to Taniguchi et al (PN. 6,094,216).**

The three-dimensional image display taught by Isono et al as described for claim 1 above has met all the limitations of the claims. Isono et al teaches that the stripe barrier on the parallax barrier panel is shifted by one pixel in response to the movement of the observer via the movement command from the controller (22) to provide stereoscopic image display but it does not teach explicitly that the one pixel is one quarter of the pitch of the parallax barrier, (please see column 7). Taniguchi et al in the same field of endeavor teaches a stereoscopic image display wherein the parallax barrier is driven to be shifted by one pixel, which corresponds to one third of the pitch of the stripe barrier, for adjusting the viewing condition of the display, (please see Figure 11B). Although these references do not teach that the one pixel is one quarter of the pitch of the parallax barrier however such modification would have been obvious to one skilled in the art since both of the references teach to shift the barrier in pixel length, which could be a fraction of the pitch of the parallax barrier, in order to obtain optimum viewing condition. Since it has

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been held when the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

With regard to claim 5, Isono et al does not teach explicitly to have the parallax barrier arranged between a light source and the image display panel. Taniguchi et al in the same field of endeavor teaches the stereoscopic image display may either have the parallax barrier placed at the emission side of the image display panel, (please see Figures 1 and 9) or have the parallax barrier placed between a flat backlight source (21) and the display panel (1), (please see Figure 29). It would then have been obvious to one skilled in the art to apply the teachings of Taniguchi et al to modify the three dimensional image display of Isono et al to have the parallax barrier placed between the light source and the image display panel for the benefit of providing an alternative arrangement for the display.

With regard to claim 10, both Isono et al and Taniguchi et al teach that the parallax barrier may be formed with different patterns of barrier areas for the purpose of improving the display and viewing quality. It would then have been obvious to one skilled in the art to design the parallax barrier to have different patterns for the barrier areas for the benefit of improving the image display quality.

10. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Isono et al in view of the patent issued to Chikazawa (PN. 5,900,972).

The three-dimensional image display taught by Isono et al as described for claim 1 above has met all the limitations of the claims. Isono et al teaches that the parallax barrier is composed of a liquid crystal panel but it does not teach explicitly that it may also be comprised of liquid crystal shutters. Chikazawa in the same field of endeavor teaches a parallax barrier device that is composed of a liquid crystal device (38) having strips of liquid crystal shutters (39 and 40, Figure 13) that may be switched between on and off state to provide movable barrier, (please see column 6). It would then have been obvious to one skilled in the art to apply the teachings of Chikazawa to modify the parallax barrier of

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Isono et al to be composed of liquid crystal shutters for providing an alternative arrangement for the barrier. Although these references do not teach to have a continuous shading part of barrier, such modification are considered to be obvious matter of design choice since one can easily make one part of the panel or the shutters to always be at a non-transparent or off state as desired.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-9 and 11-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 6-7 and 11 of U.S. Patent No. 6,049,424.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the reasons stated above.

Drawings

13. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features in claims 4, 7 and 9 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

*Audrey Y. Chang
Primary Examiner
Art Unit 2872*



A. Chang, Ph.D.
October 18, 2001